## PUBLIC DRAFT FINAL FORT TOTTEN COAST GUARD STATION

Bayside, Queens, New York

DERP-FUDS Site No. C02NY0057 NYSDEC Site No. 2-41-017

# PROPOSED REMEDIAL ACTION PLAN Operable Unit 1 – Little Bay

December 2002

Prepared by: U.S. Army Corps of Engineers

#### SECTION 1: <u>SUMMARY AND PURPOSE OF THE PROPOSED PLAN</u>

Mercury is present in the sediment of Little Bay adjacent to Building 615 at the Ft. Totten Coast Guard Station. The mercury, however, does not pose a significant threat to human health or the environment. Therefore, no remedial action is proposed as the remedy for this portion of the site. However, additional fish and shellfish tissue sampling will be performed after a period of five (5) years has elapsed to confirm that the mercury continues to pose no significant threat to human health and the environment.

This Proposed Remedial Action Plan (PRAP) identifies the preferred remedy for the Little Bay area located adjacent to the Fort Totten Coast Guard Station, and it discusses the reasons for this preference. The U.S. Army Corps of Engineers (USACE) will select a final remedy only after careful consideration of all comments received during the public comment period. The New York State Department of Environmental Conservation (NYSDEC) has agreed that the PRAP is suitable for public release; however, they reserve their concurrence on the final selected alternative until the issuance of the Record of Decision (ROD), which follows an assessment of comments received during the public comment period.

In accordance with the provisions of the Defense Environmental Restoration Program (DERP) Management Guidance, the Department of the Army (DA) serves as the Department of Defense (DoD) Executive Agent for execution of the Defense Environmental Restoration Program for Formerly Used Defense Sites (DERP-FUDS). The DA further delegated the responsibility of DERP-FUDS program management and execution to the USACE. USACE is responsible for addressing DERP-FUDS sites in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). USACE has issued this PRAP in accordance with the public participation procedures for community involvement associated with the CERCLA process, and as articulated by the National Contingency Plan (NCP).

The purpose of this PRAP is to address the issues and concerns related to Little Bay sediment, water, and fish and shellfish tissue. This document is a summary of the information that can be found in greater detail in the March 1988 Metcalf & Eddy report entitled, *Contamination Evaluation at the U.S. Coast Guard Station (Former Engineers School) Fort Totten, Final Engineering Report*, and the July 2002 USACE draft report entitled, *Remedial Investigation Report, Fort Totten Coast Guard Station, Queens, New York*. The public is encouraged to review the project documents, which are available at the following repositories:

Queens Borough Library
Bay Terrace Branch
Reference Desk
1836 Bell Boulevard, Bayside, New York 11360
(718) 423-7004

David Brouwer, Project Manager U.S. Army Corps of Engineers, New York District 190 State Highway 18, Suite 202 East Brunswick, New Jersey 08816 (877) 607-0580 (toll free)

The USACE seeks input from the community on this PRAP for Little Bay. A 30-day public comment period has been set from January 2, 2003, through February 2, 2003, to provide an opportunity for public participation in the remedy selection process for this site. In addition, a public meeting is scheduled for Thursday, January 16, 2003, at the Adria Hotel, 220-33 Northern Boulevard, Bayside, NY, beginning at 7 p.m.

At the meeting, the results of the investigation at the site will be presented along with a summary of the proposed remedy. After the presentation, a question-and-answer period will be held, during which the public can submit verbal or written comments on the PRAP. Written comments may be submitted to Mr. David Brouwer at the above address and must be postmarked by February 2, 2003.

The USACE may modify the preferred alternative or select another based on new information or public comments. Therefore, the public is encouraged to review and comment on the proposed plan.

Comments will be summarized and responses provided in the Responsiveness Summary section of the ROD. The ROD is the USACE's final selection of the remedy for this site.

#### **SECTION 2: SITE LOCATION AND DESCRIPTION**

Little Bay is located adjacent to the Willets Point peninsula in the municipality of Bayside in the northeastern region of Queens Borough, New York City (Figure 1). The site is located in an urban location and lies approximately ¾ mile due east of the southern end of the Throgs Neck Bridge. The FUDS project site (NYSDEC Site No. 2-41-017; DERP-FUDS Site No. C02NY0057) consists of 9.6 acres and is currently owned and utilized by U.S. Coast Guard (USCG). The FUDS site i.e., the USCG property, occupies the northwest region of this peninsula (Fort Totten Base) and is bordered by U.S Army property to the north, south, and west and Little Bay to the east (Figure 2). Access to Fort Totten is via the Cross Island Parkway north on Bell Boulevard. The area addressed by this PRAP is Little Bay (Figure 3). The upland areas of the site are to be addressed in a separate PRAP.

#### **SECTION 3: SITE HISTORY**

#### 3.1: Operational/Disposal History

The DoD operated on the property now occupied by the Ft. Totten Coast Guard Station between 1857 and 1943. In the 19<sup>th</sup> century, Building 615 was used for the manufacture and repair of searchlights. Starting in the 1920s, Building 615 was used as a torpedo and mine repair facility. The armaments and the searchlights contained mercury. As a result of these activities mercury entered the floor drains. The floor drains discharged directly into Little Bay, resulting in mercury being deposited in the sediment in the bay.

#### **3.2:** Remedial History

Assessment of the Ft. Totten Coast Guard Station was divided into two areas, Building 615 and Little Bay, and the upland areas. The upland areas consist of four sub-areas, the PCB area (Buildings 609 and 625), the Pesticide Area (Building 624), the Fill Area, and, as a catch-all, all other upland areas (Figure 2). The upland areas will be addressed as a separate operable unit record of decision.

The history of discovery of and remediation for mercury associated with Building 615 is presented below:

1985: A coast guard personnel discovers concentrations of 20-23 percent mercury in sludge collected from a floor drain in Building 615. (USCG 1991)

1986: The USCG collects samples from sediments in Little Bay adjacent to Building 615, and submits them for an extraction procedure toxicity test (referred to as an EP TOX analysis). The analyses indicate that mercury is not leaching into the environment. (USCG 1991)

1988: During the Preliminary Assessment/Site Investigation (PA/SI), Metcalf & Eddy collects a soil sample close to Building 615 and three sediment samples from Little Bay adjacent to the building. The mercury concentration in soil is 78 parts per billion (ppb), and concentrations in the three sediment samples ranged from 270 ppb to 1,500 ppb. (Metcalf & Eddy 1988)

1989: The U.S. Coast Guard collects sediment samples from the area adjacent to Building 615 and analyzes them for mercury. Concentrations of mercury ranged from not detected (<250 ppb) to 1,900 ppb. (USCG 1991)

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1994: The NYSDEC lists the site as a Class 2 site in the Registry of Inactive Hazardous Waste Disposal Sites in New York. A Class 2 site is a site where hazardous waste presents a significant threat to human health or the environment and investigation is warranted.

1998: The drain sump and drainage pipes that discharge from Building 615 into Little Bay are removed. Post removal samples are collected and reveal no residual mercury contamination. (Environmental Preservation Association 1998)

1998-2000: The USACE conducts a Phase I and II remedial investigation (RI). (USACE 2002)

#### **SECTION 4: SITE CONTAMINATION**

To evaluate the contamination present at the site and to evaluate potential alternatives to address the potential threat to human health and the environment posed by the release of hazardous waste, the USACE has recently conducted a RI of Little Bay (USACE 2002).

#### **4.1:** Summary of the Remedial Investigation

The RI has been conducted in two phases. The first phase was conducted in 1998 and the second phase in 1999/2000. A draft report entitled *Remedial Investigation, Fort Totten Coast Guard Station, Queens New York* (July 2002) which describes the field activities and findings of the RI in detail has been prepared. New York State agencies have just completed a review of the 2002 draft RI report. Subsequent references to this document will be referred to as the draft RI report.

The draft RI Report includes the following activities related to the sediment of Little Bay:

- Numerous sediment samples were collected at various depths and analyzed for mercury including 236 samples in 1998 (Phase I) and 176 in 1999-2000 (Phase II);
- Twelve surface water samples were analyzed for mercury using standard methods in 1998 (Phase I), and six surface water samples in 1999-2000 (Phase II) using mercury low detection limit methods:
- Five composite mussel samples, five composite oyster samples, seven windowpane flounder and
  five white flounder samples were taken in 1998 and analyzed for mercury. During 1999-2000
  (Phase II) four composite oyster samples, ten composite mummichog samples, five composite blue
  crab samples, and five composite juvenile striped bass samples were collected and analyzed for
  mercury;
- Toxicity tests were performed with the polychaete *Leptocheirus plumulosus* on five sediment samples and one background sample during 1999-2000 (Phase II);
- Potential human exposure pathways were evaluated; and

• A quantitative ecological risk assessment was performed to determine if mercury in Little Bay had presented an unacceptable risk to the environment.

To determine which media (surface water, sediment etc.) are contaminated at levels of concern, the draft RI analytical data were compared to NYSDEC environmental Standards, Criteria, and Guidance values (SCGs). Surface water SCGs identified for Little Bay at the Fort Totten Coast Guard Station are based on NYSDEC Ambient Water Quality Standards and Guidance Values. Guidance values for evaluating contamination in sediments are provided by the NYSDEC "Technical Guidance for Screening Contaminated Sediments".

For comparison purposes, where applicable, SCGs are provided for each medium when available. Based on the draft RI results, in comparison to the SCGs and potential public health and environmental exposure routes, certain media and areas of the site required further study. These are summarized below.

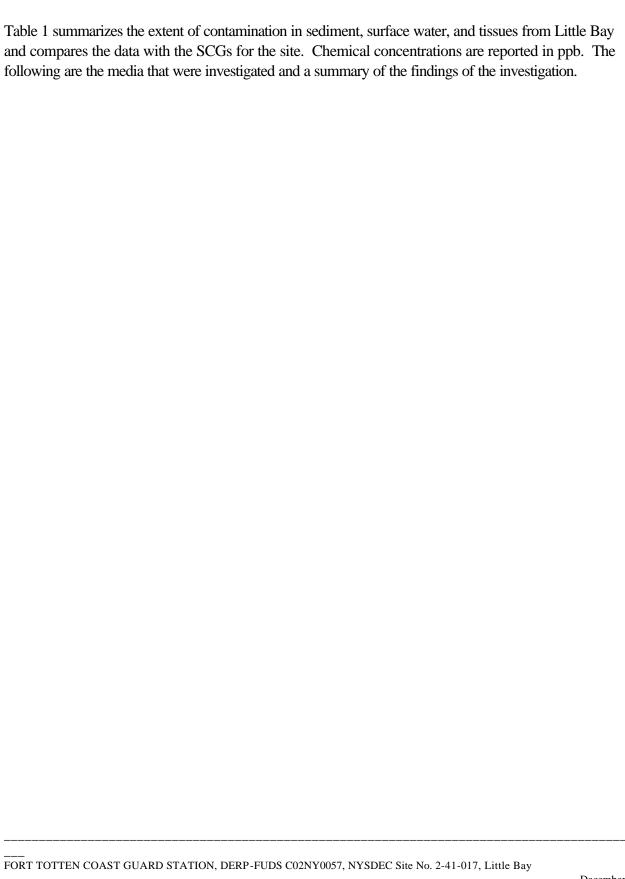
#### **4.1.1: Sedimentation Rate**

An estimate of the timeframe for accumulation of mercury in Little Bay was developed using the chronology of sediment accumulation in Jamaica Bay, New York, which was developed using radionuclide markers by *Bopp et al.* (1993). The depositional environment of Little Bay is similar to Jamaica Bay in sources and conditions of sedimentation. *Bopp et al.* (1996) reported that the accumulation rate in Jamaica Bay averaged about 1.6 cm/yr between the mid-1950s and late 1980s. This estimate was based on fallout from atmospheric testing of nuclear weapons and from the disintegration of a nuclear powered satellite upon entering the atmosphere in 1964. The highest mean concentration of mercury in the sediment was found at a depth of 6 feet. A sedimentation rate of 1.6 cm/yr translates to 19 years per foot of sediment, so the age of sediment at a depth of 6 feet would be approximately 114 years (circa 1886). *Bopp et al.* (1996) note that due to compression of fine-grained sediments during gravity coring, this rate could significantly underestimate the actual sediment accumulation at the site. If the rate is actually twice what was reported, this means that the sediment would be 57 years old at a depth of 6 feet.

#### **4.1.2:** Nature of Contamination

Based upon knowledge of past disposal practices, only mercury was addressed as a contaminant of concern in Little Bay. As described above, sediment, surface water, and fish and shellfish tissue samples were collected at the site to characterize the nature and extent of the potential mercury contamination. Mercury was found at levels above SCGs in sediments but not in surface water or fish.

#### **4.1.3: Extent of Contamination**



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Table 1
Nature and Extent of Contamination

MEDIUM	CATEGORY	CONTAMINANT OF CONCERN	CONCENTRATION RANGE (ppb)	FREQUENCY of EXCEEDING SCGs	SCG (ppb)
Sediment	Metals	Mercury	ND (<50) to 5,250	277 of 412	150 <sup>1</sup>
Surface Water	Metals	Mercury, total	ND (<0.1) to 0.27	N/A	$NA^2$
Surface Water	Metals	Mercury, dissolved	ND (<0.0002)	0 of 6	$0.0007^3$
Oyster	Metals	Mercury	ND (<80) to 100	0 of 9	$1,000^4$
Mussel	Metals	Mercury	ND (<110)	0 of 5	$1,000^4$
Windowpane Flounder (whole body)	Metals	Mercury	ND (<50) to 200	0 of 7	1,000 <sup>4</sup>
White Flounder (whole body)	Metals	Mercury	ND (<50) to 70	0 of 5	1,000 <sup>4</sup>
Mummichog	Metals	Mercury	ND (<90) to 100	0 of 10	$1,000^4$
Blue Crab	Metals	Mercury	ND (<100)	0 of 5	1,0004
Juvenile Striped Bass	Metals	Mercury	ND (<100)	0 of 5	1,0004

- 1. Effect Range-Low (ER-L) (Long et al. 1995)
- 2. NA = "not applicable". The state standard for mercury in saline waters is only applicable for dissolved concentrations.
- 3. NYSDEC TOGS 1.1.1. Applies to dissolved mercury.
- 4. FDA Action Level for "edible" portion.
- 5. ND = "non-detect". The contaminant of concern was not detected in the medium below the number indicated paraphrases.

#### **Sediments**

It is likely that there was a release of mercury to Little Bay from Building 615 during operation of the facility. Mercury in sediment at the 0-1 ft depth averaged 0.54 mg/kg, and showed a pattern of low concentrations approximately 100 ft from the sea wall (ND -2,000 ppb) (Figure 4). Slightly higher, ambient concentrations were located farther away from the wall (ND - greater than 3,000 ppb) (Figure 4). Mercury concentrations in sediment tended to be higher (upwards of 4,000 ppb) in medium depth samples (2-6 ft depth).

Sediment sample results of mercury concentrations in Little Bay were used to model the three-dimensional distribution in the sediment to a depth of 10 ft (Figures 5a through 5e). The model shows that the areal extent of sediment in Little Bay with mercury concentrations above the SCG ER-L (150 ppb) is greatest at the 3-8 ft depth, and decreases with depth to 10 ft. The SCG ER-L is the State Standards, Criteria, and Guidance values for sediment. The ER-L is the Effects Range-Low standard for the protection of organisms that live in sediment as presented by Long *et al.* (1995) and represents the concentration in sediment at which 10 percent of the data showed toxic effects to those organisms.

#### **Surface Water**

Twelve surface water samples were taken during the Phase I RI (1998) using standard analytical techniques for the analysis of total mercury. Mercury was detected in several of these samples (up to 0.27 ppb), and the detection limit for these samples was 0.1 ppb. The NYSDEC mercury standard of 0.0007 ppb is based on dissolved mercury. During the 1998 Phase I study the detection limit was significantly higher than the NYSDEC standard and only total mercury samples were taken. Consequently, during the 1999-2000 Phase II sampling session low detection limit methodologies were utilized for the analysis of dissolved mercury in surface water. From the Phase II analyses, six dissolved mercury samples revealed that mercury was never detected (the detection limit was 0.0002 ppb), showing that the State standard of 0.0007 ppb was not exceeded.

#### **Tissues**

Mercury was not detected in mussels, blue crab, or juvenile striped bass. Low concentrations of mercury (all less than 200 ppb) were measured in oysters, white flounder, and mummichog. There are no State standards for mercury in tissues. Table 1 shows the FDA Action Level (1,000 ppb) for the protection of humans consuming the "edible" portion of fish. None of the tissue samples exceeded 200 ppb, and were consequently below the FDA Action Level. All fish and shellfish species listed in Table 1 are consumed by humans with the exception of the mummichog, which is a fish consumed by predatory fish.

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#### **4.2:** Interim Remedial Measures

An Interim Remedial Measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before completion of the RI.

The sump, drains, and discharge pipes from Building 615 were removed from the building in 1998 (Environmental Preservation Association 1998). The practice of discharging mercury down these drains had ceased decades previous to this action, and the discharge pipes were clogged with sediment. The mercury source was removed by this IRM.

#### 4.3: Summary of Human Exposure Pathways:

This section describes the types of human exposures that may present added health risks to persons at or around the site.

An exposure pathway is the manner by which an individual may be exposed to contaminants originating from the site. An exposure pathway has five elements:

- 1) a source of contamination;
- 2) contaminant release and transport mechanisms;
- 3) a point of exposure;
- 4) a route of exposure; and
- 5) a receptor population.

The source of contamination is the source of contaminant release to the environment (any waste disposal area or point of discharge). Contaminant release and transport mechanisms carry contaminants from the source to a point where people may be exposed. The exposure point is a location where actual or potential human contact with a contaminated medium may occur. The route of exposure is the manner in which a contaminant actually enters or contacts the body (i.e., ingestion, inhalation or direct contact). The receptor population is the people who are, or may be, exposed to contaminants at a point of exposure.

An exposure pathway is complete when all five elements of the pathway are documented. A potential exposure pathway exists when at least one of the five elements remains undocumented, but could exist.

Pathways that are known to or may exist at the site include the following:

#### • Ingestion

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**Sediments**-Currently access to the site is restricted, consequently there are only limited exposure pathways to site sediment. In the future, adult and child recreational angler/beach combers may more frequently incidentally ingest sediment from the site. It was assumed that an adult recreational angler/beach comber would beachcomb at the site.

**Fish and shellfish tissue** - While there are only limited current exposures to fish and shellfish residing in Little Bay, future adult and child anglers may more frequently consume the fish and shellfish tissue they take from Little Bay. Little Bay finfish adult consumption rates were specific to the Mid-Atlantic region.

#### • Dermal Contact

**Sediments**-Under current conditions access to the site is restricted, consequently only limited current dermal contact with sediment is expected. Under future conditions, adults and children angler/beach combers may more frequently come into dermal contact with sediment. It was assumed that an adult recreational angler/beach comber would beachcomb at the site.

Although there are completed and potentially complete exposure pathways associated with mercury in Little Bay, concentrations are not at a level of public health concern. Typical background soil concentrations of mercury range between 100 and 1,000 ppb. The mercury levels from the uppermost foot of sediment are consistent with this background soil range (and deeper sediments appear to be only slightly higher). Furthermore, the average mercury levels in fish and shellfish in the Phase I RI sampling were below the FDA action level of 1,000 ppb, and no samples collected during the Phase II RI investigation contained mercury above the minimum detection limit.

The New York State Department of Health (NYS DoH) issues advisories that recommend restrictions on eating blue fish, striped bass and American eel from Little Bay and other New York State marine waters. The contaminant that led to the advisories are polychlorinated biphenyls (PCBs). To limit their exposure to these contaminants, the public is encouraged to follow the advisories, which are updated annually. The current advisories are available on the NYS DOH website (http://www.health.state.ny.us/nysdoh/environ/fish.htm) or can be requested by emailing BTSA@health.state.ny.us or by calling 1-800-458-1158 (ext. 27815).

In addition, NYSDEC routinely tests clam, oyster and mussel beds for bacteria. Based on these tests, an area may be closed to clam, oyster and mussel harvesting. For a list of emergency closures, please contact DEC at (631) 444-0480. Information on rules and regulation, including areas in which clam, oyster and mussel collection is permitted, can be obtained from NYSDEC by calling (631) 444-0475.

#### 4.4: Summary of Environmental Exposure Pathways

This section summarizes the types of environmental exposures and ecological risks that may be presented by the site. An ecological risk assessment (ERA) for Little Bay was performed. An ERA refers to an appraisal of the actual or potential impacts of contaminants from a hazardous waste site on plants and animals other than humans and domesticated species. The ERA followed guidance set forth in the USEPA's "Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments" (USEPA 1997), Steps 1 and 2. New York State guidance (e.g., sediment criteria) was used to supplement where appropriate.

Ecological risk does not exist unless:

- 1) the chemical (mercury in this case) has the ability to cause one or more adverse effects, and
- 2) it co-occurs with or contacts an ecological component long enough and at a sufficient intensity to elicit the identified adverse effect.

#### **Exposure Summary**

Ecological receptors of concern identified at Little Bay in the vicinity of the Fort Totten Coast Guard Station included:

Shellfish

American oyster (*Crassostrea virginica*) blue mussel (*Mytilus edulis*) blue crab (*Callinectes sapidus*)

Finfish

striped bass (*Morone saxatilis*) winter flounder (*Plueronectes americanus*) summer flounder (*Paralichthys dentatus*) mummichog (*Fundulus heteroclitus*)

- Benthic (Sediment-dwelling) organisms
  Represented by the estuarine amphipod *Leptocheirus plumulosus*
- Aquatic Birds herring gull (*Larus argentatus*)
- Mammals raccoon (*Procyon lotor*)

Risks of exposure for shellfish, finfish, and benthic organisms were quantified by comparison of toxicity-based screening concentrations to measured concentrations in surface water (shellfish and finfish) or sediment (benthic organisms). Additionally, risk to the benthic community was also examined with toxicity testing with a 28-day exposure toxicity test is to determine the chronic toxicity of the sediment. Risk to mammals and birds were quantified using food-chain modeling and comparison of chemical doses to No Observed Adverse Effect Level (NOAEL) doses. The NOAEL dose represents a

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chemical dose that has had no negative impacts on the organism of interest, and is therefore a conservative measure of toxicity.

#### **Risk/Hazard Summary**

A comparison of mercury concentrations in sediment to benchmark risk concentrations indicates that there are no unacceptable risks to sediment-dwelling organisms. Dissolved mercury was not detected in surface water with a detection limit smaller than the NYSDEC dissolved mercury standard. This indicates that finfish, shellfish, and other aquatic biota in the surface water of Little Bay are not at risk. The range of concentrations found in oyster tissue, crab tissue, mussel tissue, and surface water of Little Bay indicated there would be no adverse effect on survival. Sediment samples tested for toxicity to benthic organisms were similar to the laboratory and reference control performance, indicating mercury in sediment samples had no adverse effects to benthic organisms.

Food-chain risks of mercury for the herring gull (*Larus argentatus*) and raccoon (*Procyon lotor*) were 0.8 and 1.8 respectively. Food-chain risks are assessed using a hazard quotient, where a hazard quotient greater than 1.0 may mean potential risk. While the hazard quotient for the raccoon was slightly greater than 1.0 at 1.8, these risks are based on conservative estimates of exposure, and are compared to conservative toxicity values.

In summary, there are no significant adverse risks to ecological receptors from exposure to mercury in Little Bay, and no indications that populations of ecological receptors will be damaged by these exposures.

#### **SECTION 5: ENFORCEMENT STATUS**

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. This may include past or present owners and operators, waste generators, and haulers. DoD takes full responsibility for addressing identified environmental concerns on the DERP-FUDS portion of the Fort Totten site associated with past DoD activities. No additional PRPs have been identified.

No Consent Orders have been issued by the NYSDEC. No agreements or consent decrees such as a Federal Facilities Agreement have been entered into with the USEPA or NYSDEC.

#### SECTION 6: SUMMARY OF THE REMEDIAL GOALS AND PROPOSED ACTION

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The selected remedy for any site should, at a minimum, eliminate or mitigate all significant threats to the public health or the environment presented by the hazardous waste present at the site. The USACE believes that the removal action completed in 1998, which is described in Section 4.2 Interim Remedial Measures, has accomplished this objective by eliminating the source of mercury that had been released historically into Little Bay.

Based on the results of the investigations that were performed at the site, the USACE is proposing no remedial action as the preferred remedial alternative for the site. Additional fish and shellfish tissue sampling will be performed after a period of five (5) years has elapsed to confirm that the mercury continues to pose no significant threat to human health or the environment.

#### REFERENCES

- Bopp, R., H. Simpson, S. Chillrud, and D. Robinson. 1993. Sediment-derived chronologies of persistent contaminants in Jamaica Bay, New York. *Estuaries* 16(38):608-616.
- Bopp, R.F., J.A. Butler, D.A. Chaky, E.L. Shuster, S.N. Chillrud, and F.D. Estabrooks. 1996. *Geographic and Temporal Distribution of Particle-Associated Contaminants in Sediments of the Hudson River Basin*. Presented at the 17<sup>th</sup> Annual Meeting of the Society of Environmental Toxicology and Chemistry (SETAC), Washington, DC, 17-21 November.
- Environmental Preservation Associates. 1998. Ft. Totten, Flushing New York, Closure Report.
- Long, E.R., D.D. MacDonald, S.L. Smith, and F.D. Calder. 1995. Incidence of adverse biological effects within ranges of chemical concentrations in marine and estuarine sediments. *Environ. Manage*. 19:81-97.
- Metcalf & Eddy, Inc. 1988. Contamination Evaluation at the U.S. Coast Guard Station (Former Engineers School) Fort Totten, Final Engineering Report. March.
- US Army Corps of Engineers (USACE). 2002. Draft Remedial Investigation, Fort Totten Coast Guard Station, Queens, New York. August.
- U.S. Coast Guard (USCG). 1991. Report on Fort Totten-New York, Mercury Investigation. From Commanding Officer, USCG Research and Development Center to Supervisor, CG Shoremaintenance Detachment, New York. Dated 11 February.
- US Environmental Protection Agency (USEPA). 1997. Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments, Interim Final. EPA 540-R-97-006. June.

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### PUBLIC DRAFT FINAL PROPOSED REMEDIAL ACTION PLAN

## OPERABLE UNIT 1 - LITTLE BAY, FORT TOTTEN COAST GUARD STATION

Bayside, Queens, New York

DERP-FUDS Site No. C02NY0057 NYSDEC Site No. 2-41-017

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